WHAT IS CLAIMED IS:

1. A process for forming a three-dimensional article by stereolithography, said process comprising the steps:

(a) coating a thin layer of a liquid radiation-curable composition onto a surface said composition including at least one filler comprising silica-type nano-particles suspended in the radiation-curable composition:

(b) exposing said thin layer imagewise to actinic radiation to form an imaged cross-section, wherein the radiation is of sufficient intensity to cause substantial curing of the thin layer in the exposed areas;

(c) coating a thin layer of the composition onto the previously exposed imaged cross-section;

(d) exposing said thin layer from step (c) imagewise to actinic radiation to form an additional imaged cross-section, wherein the radiation is of sufficient intensity to cause substantial curing of the thin layer in the exposed areas and to cause adhesion to the previously exposed imaged cross-section;

(e) repeating steps (3) and (4) a sufficient number of times in order to build up the three-dimensional article.

2. The process of claim 1 wherein the radiation-curable composition includes:

(a) at least one free-radical polymerizing organic substance;

(b) at least one free-radical polymerization initiator;

(c) at least one filler comprising silica-type nanoparticles suspended in the radiation-curable composition;

(d) optionally, at least one cationically polymerizing organic substance;

(e) optionally, at least one cationic polymerization initiator;

(f) optionally, at least one hydroxyl-functional compound; and

(g) optionally, at least one type of microparticle filler

3. The process of claim 2 wherein component (A) is at least one mono-, di-, tri-, tetra- or pentafunctional monomeric or oligomeric aliphatic, cycloaliphatic or aromatic (meth)acrylate.

4. The process of claim 2 wherein component (a) is at least one (meth)acrylate comprises a mono-, di- or tri-functional aliphatic (meth)acrylate compound.

5. The process of claim 2 wherein component (a) comprises a mono-functional aliphatic (meth)acrylate compound.

6. The process of claim 2 wherein component (a) comprises a di-functional aliphatic (meth)acrylate compound or pentafunctional monomeric or oligomeric aliphatic, cycloaliphatic, or aromatic (meth)acrylate.

7. The process of claim 2 wherein component (a) comprises a urethane (meth)acrylate.

8. The process of claim 2 wherein component (a) constitutes from about 5% to about 70% by weight of the total liquid radiation-curable composition.

9. The process of claim 2 wherein component (b) is 1-hydroxycyclohexyl phenyl ketone or 2,4,6-trimethylbenzoyldiphenylphosphine oxide or a mixture of both.

10. The process of claim 2 wherein component (b) constitutes from about 0.1 to about 7% by weight of the total liquid radiation-curable composition.

11. The process of claim 2 wherein component (c) nano-particles are spherical, have a particle size distribution of 10 to 50 nanometers, are not agglomerated, and are surface modified.

12. The process of claim 2 wherein component (c) constitutes from about 15% to about 60% by weight to the total resin composition.

13. The process of claim 2 wherein component (d) is present and comprises 3,4-epoxycyclohexylmethyl-3',4'-epoxycyclohexane carboxylate.

14. The process of claim 2 wherein component (d) is present and comprises trimethylol propane triglycidylether.

15. The process of claim 2 wherein component (d) is present and constitutes from about 10% to about 40% by weight of the total liquid radiation-curable composition.

16. The process of claim 2 wherein component (e) is present and is triarylsulfonium hexafluoroantimonate.

17. The process of claim 2 wherein component (e) is present and constitutes from about 0.1 to about 8% by weight of the total liquid radiation-curable composition.

18. The process of claim 2 wherein additionally comprising at least one (f) hydroxyl-functional compound.

19. The process of claim 18 wherein component (f) is trimethylol propane.

20. The process of claim 2 wherein component (f) is present and constitutes about 1% to about 10% by weight of the total liquid radiation-curable composition.

21. The process of claim 2 wherein the composition comprises:

(a) at least one mono-, di-, tri-, tetra- or pentafunctional monomeric or oligomeric aliphatic, cycloaliphatic or aromatic (meth)acrylate;

(b) at least one free-radical polymerization initiator;

(c) at least one filler comprising silica nanoparticles suspended in the composition;

(d) at least one cationically polymerizing organic substance selected from the group consisting of 3,4-epoxycyclohexylmethyl-3',4'-epoxy-cyclohexane carboxylate, trimethylol propane triglycidylether and mixtures thereof;

(e) at least one cationic polymerization initiator;

(f) at least one hydroxyl-functional compound; and

(g) at least one microparticle filler.

22. A solid three-dimensional article produced by the process of claim 1.

23. A liquid radiation-curable composition useful for the production of three dimensional articles by stereolithography that comprises:

(a) at least one free-radical polymerizing organic substance;

(b) at least one free-radical polymerization initiator;

(c) at least one filler comprising silica-type nanoparticles suspended in the radiation-curable composition;

(d) at least one cationically polymerizing organic substance;

(e) at least one cationic polymerization initiator;

(f) optionally, at least one hydroxyl-functional compound; and

(g) optionally, at least one type of microparticle filler.

24. The composition of claim 23 wherein component (a) is at least one mono-, di-, tri-, tetra- or pentafunctional monomeric or oligomeric aliphatic, cycloaliphatic or aromatic (meth)acrylate.

25. The composition of claim 23 wherein component (a) comprises a mono-, di- or tri-functional aliphatic (meth)acrylate compound.

26. The composition of claim 23 wherein component (a) comprises a mono-functional aliphatic (meth)acrylate compound.

27. The composition of claim 23 wherein component (a) comprises a di-functional aliphatic (meth)acrylate compound or pentafunctional monomeric or oligomeric aliphatic, cycloaliphatic, or aromatic (meth)acrylate.

28. The composition of claim 23 wherein component (a) comprises a urethane (meth)acrylate.

29. The composition of claim 23 wherein component (a) constitutes from about 5% to about 50% by weight of the total liquid radiation-curable composition.

30. The composition of claim 23 wherein component (b) is 1-hydroxycyclohexyl phenyl ketone or 2,4,6-trimethylbenzoyldiphenylphosphine oxide or a mixture of both.

31. The composition of claim 23 wherein component (b) constitutes from about 0.1 to about 7% by weight of the total liquid radiation-curable composition.

32. The composition of claim 23 wherein component (c) nanoparticles are spherical, have a particle size distribution of 10 to 50 nanometers, are not agglomerated, and are surface modified.

33. The composition of claim 23 wherein component (c) constitutes from about 15% to about 60% by weight to the total resin composition.

34. The composition of claim 23 wherein component (d) comprises 3,4-epoxycyclohexylmethyl-3',4'-epoxycyclohexane carboxylate.

35. The composition of claim 23 wherein component (d) comprises trimethylol propane triglycidylether.

36. The composition of claim 23 wherein component (d) constitutes from about 10% to about 40% by weight of the total liquid radiation-curable composition.

37. The composition of claim 23 wherein component (e) is triarylsulfonium hexafluoroantimonate.

38. The composition of claim 23 wherein component (e) constitutes from about 0.1 to about 8% by weight of the total liquid radiation-curable composition.

39. The composition of claim 23 wherein additionally comprising at least one (f) hydroxyl-functional compound

40. The composition of claim 23 wherein component (f) is trimethylol propane.

41. The composition of claim 23 wherein component (f) is present from about 1% to about 10% by weight of the total liquid radiation-curable composition.

42. The composition of claim 23 wherein the composition comprises:

(a) at least one mono-, di-, tri-, tetra- or pentafunctional monomeric or oligomeric aliphatic, cycloaliphatic or aromatic (meth)acrylate;

(b) at least one free-radical polymerization initiator;

(c) at least one filler comprising silica nanoparticles suspended in the composition;

(d) at least one cationically polymerizing organic substance selected from the group consisting of 3,4-epoxycyclohexylmethyl-3',4'-epoxy-cyclohexane carboxylate, trimethylol propane triglycidylether and mixtures thereof;

(e) at least one cationic polymerization initiator;

(f) at least one hydroxyl-functional compound; and

(g) at least one microparticle filler.